

ABSTRACT OF THE DISCLOSURE

The present invention to a sensor element, particularly a sensor element useful in a vehicle occupant detection system. The sensor element comprises a first conductor and a second conductor disposed transversely with respect to one another to define a junction. In use, when a constant voltage is applied to the conductors, a first conductance is produced in the absence of applied weight to sensor element and a second conductance is produced in the presence of applied weight to the sensor element wherein the second conductance being greater than the first conductance. By incorporating a number of such junctions into matrix arrangement, the present sensor can be advantageously employed in a vehicle occupant detection system. This allows for the creation of a spreadsheet like environment where interrogation of each matrix cell provides information about the acting force. Since it is possible to identify the location of the given cell in an overall matrix, it is possible to pinpoint the position of the acting force or pressure. The combination of information on each cell can be recognized as one or more patterns. A centroid for such patterns can be readily calculated (i.e., based on interrogating the matrix for the conductance difference referred to above) and the prediction of the position of the occupant in the vehicle seat can be deduced.